

WHAT IS CLAIMED IS:

1 1. A method of implementing cable modem functions on a
2 host computer comprising:

3 receiving information which may include cable modem data
4 and cable modem commands at the cable modem;

5 transferring at least a portion of the information to the
6 host computer;

7 performing functions corresponding to any transferred
8 cable modem commands on the host computer into first results;

9 processing any transferred cable modem data on the host
10 computer into second results;

11 translating the first results into hardware specific
12 functions;

13 translating the second results into hardware specific
14 data formats;

15 executing the hardware specific functions; and

16 transferring the hardware specific data.

1 2. The method of Claim 1, wherein the host computer
2 includes a cable modem abstraction layer.

1 3. The method of Claim 2, wherein the translating is
2 performed in by the abstraction layer.

1 4. The method of Claim 2, wherein the abstraction layer
2 is a DOCSIS abstraction layer.

1 5. The method of Claim 1, wherein the cable modem
2 functions are performed in a firmware emulator.

1 6. The method of Claim 1, wherein the modem functions
2 performed on the host computer may be hardware independent.

7 7. A modem function processor comprising:

8 an abstraction layer which translates modem functions to
9 and from hardware-specific functions; and

10 a firmware emulator which performs hardware independent
11 functions.

1 8. The modem function processor Claim 7, wherein the
2 abstraction layer sends or receives modem commands and/or data
3 to or from a cable modem.

1 9. The modem function processor Claim 7, wherein the
2 abstraction layer is a DOCSIS abstraction layer.

1 10. The modem function processor Claim 7, wherein the
2 firmware emulator includes a plurality of state machines and
3 states within the state machines.

1 11. The modem function processor Claim 10, wherein the
2 plurality of state machines performs the cable modem
3 functions.

1 12. The modem function processor Claim 7, further
2 comprising an interface to a cable modem.

13. The modem function processor Claim 12, wherein the
interface may include one or more intermediate software driver
interface layers, such as a transport driver interface.

14. The modem function processor Claim 12, wherein the
interface is a direct interface.

15. A method of performing modem functions comprising:

2 receiving the modem commands and/or data; and

3 distributing the modem commands and/or data among state
4 machine functions; and

5 processing the state machine functions on a host
6 computer.

1 16. The method of Claim 15, wherein the conversion is
2 performed by an abstraction layer which converts between
3 hardware specific functions and hardware independent
4 functions.

1 17. The method of Claim 15, wherein the modem functions
2 are cable modem functions.

1 18. The method of Claim 15, wherein the processing uses
2 resources of the host computer.

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